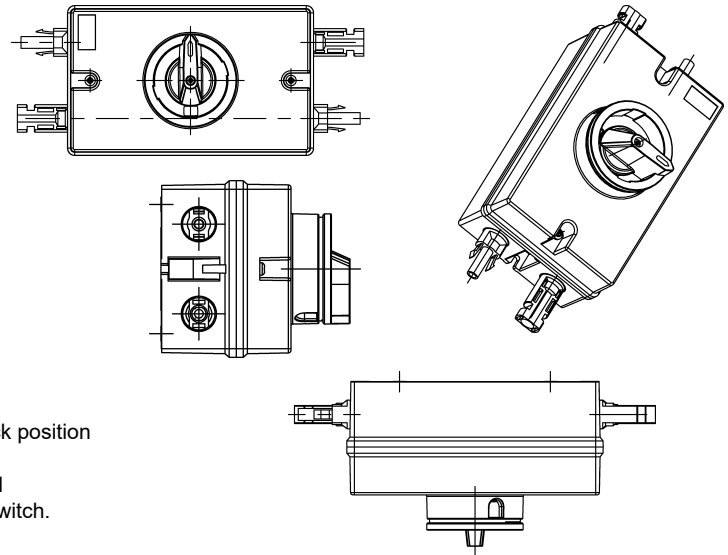


AIMS POWER SOLAR QUICK DISCONNECT SWITCH

The AIMS Solar Quick Disconnect Switch gives your solar system a convenient, extra safety and flexibility when maintenance is required on your system. This quick disconnect switch is also ideal for applications such as cabins or vacation homes that don't require delivery of constant solar power. Simply disconnect your solar array and reconnect when needed. This switch is 1200V with 1 – 32 Amp circuit compatible with small and large off-grid or grid tied solar systems.



INSTRUCTIONS

1. Use 10 AWG PV cable and MC4 connectors.
2. Install disconnect switch as close as possible to the PV array.
3. Mount in any orientation.
4. Turn knob counter clockwise to disconnect power.
5. When installing or working with PV system, turn dial to the OFF/Lock position and insert lock (not included) to ensure system remains off.
6. When system is completely ready for use, remove lock and turn dial clockwise to the ON position. This will allow current to bypass the switch.

Calculate Current Using Vmp

Series Connection: Total Panel Power (watts) / Total Vmp of Panel * # of panels in series = Input Current in amps

Parallel Connection: Total Panel Power (watts) / Vmp of Panel = Input Current in amps

EXAMPLE USING 6 PANELS

SERIES CONNECTION

- 250 Watt panels * 6 panels = 1500 watts of total panel power
- 250 Watt panel's Vmp rating = 30.3 V (check your panel Vmp rating)
- $30.3 * 6 = 181.8$ V total panel Vmp
- $1500 \text{ Watts} / 181.8 \text{ V} = 8.25$ Amps

PARALLEL CONNECTION

- 250 Watt panels * 6 panels = 1500 watts of total panel power
- 250 Watt panel's Vmp rating = 30.3 V (check your panel Vmp rating)
- $30.3 = 30.3$ V total panel Vmp (parallel connection increases amps not volts)
- $1500 \text{ Watts} / 30.3 \text{ V} = 49.5$ Amps

***The disconnect switch includes 1 – 32 Amp circuit. In this example, the disconnect switch is compatible with solar panels connected in series only.**

Calculate Voltage Using Voc

SERIES CONNECTION

Number of panels in series * Voc of panel = Total PV Voltage

Example of Voltage calculation:

- Voc of panel: 38 V
- Number of panels in series: 6
- $38 \text{ V} * 6 = 228$ Volts – Disconnect switch is rated at 1000V, which is well within voltage range.

PARALLEL CONNECTION

Number of panels in parallel = Total PV Voltage (Voc). Parallel connections do not change voltage.

Example of Voltage calculation:

- Voc of panel: 38 V
- Number of panels in parallel: 6
- $38 \text{ V} = 38 \text{ V}$ Voltage does not change
- Disconnect switch is rated at 1000V, which is well within voltage range **BUT** you must make sure you also calculate amperage per example above.

*Solar tip from AIMS Power. How do I size a charge controller?

You can use this same Voc calculation above to size your charge controller. All charge controllers have a voltage operating range. Most AIMS Power's charge controllers operate up to 150V. In the example above, you have a total Voc of 228. Simply connect 3 of your panels in series. This will give you two strings of 3 panels each. Next, connect the two strings in parallel and you are ready to harvest solar energy.

Formula: Total panel power (watts) / Vdc = amps

Using the same 250 Watt panel example from above and assuming a 24 Vdc battery bank.

- $1500 \text{ watts total panel power} / 24 \text{ Vdc (or 12, 36, 48 Vdc etc.)} = 62.5$ amps

You will need a charge controller over 62.5 amps that can operate at 24 Vdc. AIMS Power offers charge controllers ranging from 30 Amp up to 100 Amp that can charge 12/24/36 or 48 Vdc battery banks.